Why Create a Board?

Earthquakes pose unique public policy challenges. Awareness is limited outside a few areas. Major earthquakes are infrequent events with potentially great consequences. Few jurisdictions regard them as clear and present dangers, so daily problems tend to crowd out earthquake issues. There is little understanding about what can be done to lessen earthquake risk. Moreover, because earthquakes occur in most areas less frequently than other major disasters—such as floods, hurricanes, and tornadoes—the resources required to deal with seismic issues are often weighed against the probability that no major event will occur in the near future. As a result, a majority of states are not addressing earthquake risk in an on-going statewide program. A seismic safety advisory board can help keep efforts to address this risk viable.

Responsibility for seismic safety is typically spread among many local, state, and federal agencies as well as individuals and businesses. Emergency response and recovery may be a multi-state effort. It is also crowded onto disparate agendas and mingled with more immediate demands that get a higher priority. Seismic safety stands a better chance of increased priority in both the public and the private sectors if one entity has responsibility for bringing it into focus and to the attention of the public and the policy makers.

CREATING A SEISMIC SAFETY ADVISORY BOARD IS JUSTIFIED ORGANIZATIONALLY AND FISCALLY.

State and local governments are short of resources and have crowded agendas. But despite crowded agendas and desperate budgets, those entrusted with public safety should not gamble on the future. It must be remembered that a "moderate" chance of earthquake refers only to occurrence interval, not to the level of damage that such an event may cause. A seismic safety advisory can provide a low-cost, common-sense means to ensure that legitimate, long-term seismic safety problems receive the attention they deserve and the mitigation efforts they demand.

EARTHQUAKES ARE POSSIBLE IN VIRTUALLY ALL PARTS OF THE UNITED STATES.

The U. S.—Earthquake Country

The Plymouth pilgrims felt their first earthquake in 1638, thus discovering that the northeastern states are seismically active. In 1727, a temblor shook the eastern seaboard from Maine to Delaware, and in 1755, an even stronger quake rocked Massachusetts and rendered the streets of Boston impassable. The 1925 La Malbaie, Quebec, earthquake was felt over an area of 1 million square miles, from New England as far south as Virginia. A pair of damaging earthquakes occurred near Ossipee, New Hampshire, in 1940, and were felt to distances of 350 miles and over an area of 400,000 square miles. More recently, New England has been subjected to ground shaking from two moderate quakes occurring in New Brunswick during 1982, a moderate earthquake in central New Hampshire in 1982, and another moderate temblor in New York State in 1983.

Even the southeastern states were reminded of their seismicity in 1886, when a major earthquake struck Charleston, South Carolina, causing

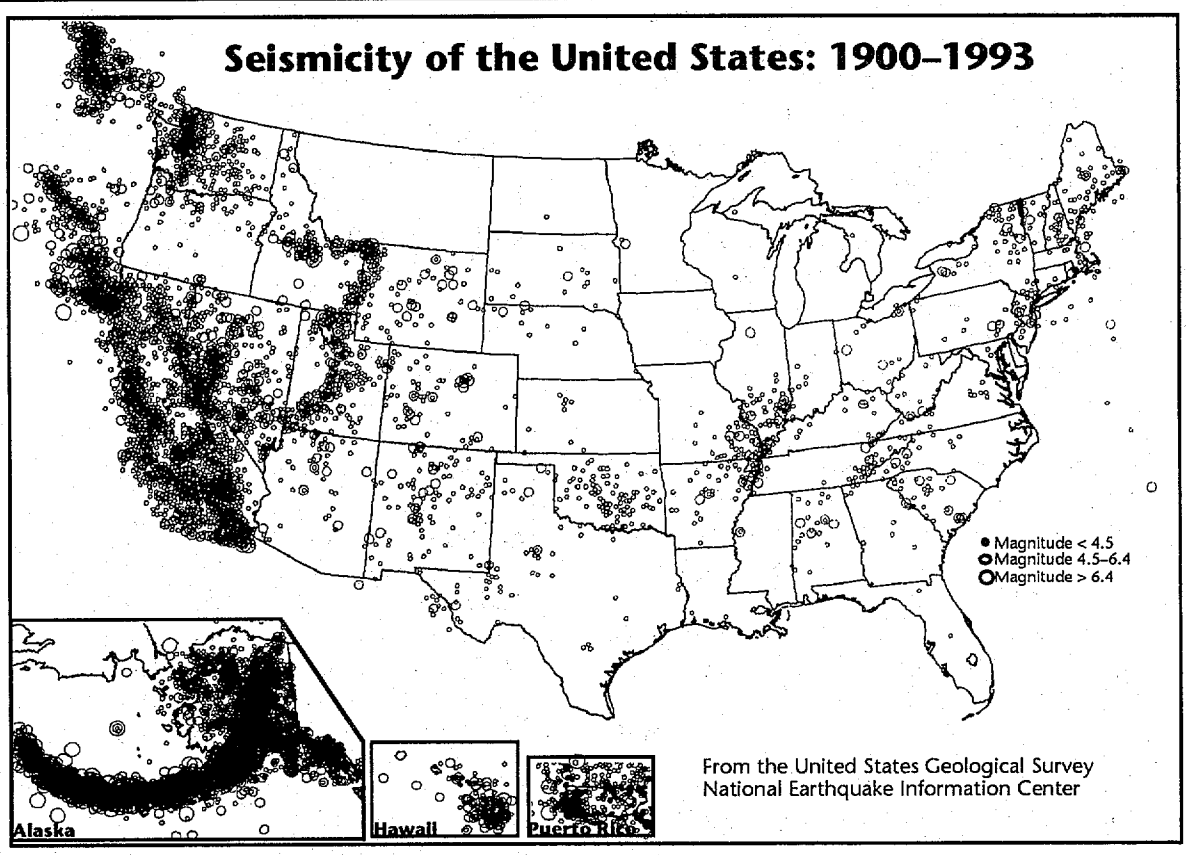
severe damage. In what is now the central United States, a series of great earthquakes exceeding Richter magnitude 8 occurred on the New Madrid (Missouri) fault during the winter of 1811-12, rocking what are now the states of Arkansas, Illinois, Indiana, Mississippi, Missouri, Kentucky, and Tennessee. These events were of such enormous magnitude that the flow of the Mississippi River was temporarily reversed. Ground shaking was so strong and far reaching that buildings were severely damaged in Chicago and Cincinnati. Pavement was cracked and church bells rung in the mid-Atlantic and New England states, a thousand miles from the New Madrid epicenters. These earthquakes were felt over an area of 5 million square miles.

The Pacific Coast states—Alaska, Washington, Oregon, California, and Hawaii—are among the nation's most seismically active, having experienced damaging earthquakes and volcanic activity within the lifetimes of residents. Utah, Montana, Nevada, Idaho, and portions of Wyoming and Arizona also experience earthquakes.

EARTHQUAKES CAN BE AMONG THE MOST MANAGEABLE DISASTERS.

Although earthquakes occur more frequently in the western states than elsewhere in the United States, earthquakes in the central and eastern states are potentially more damaging. This discrepancy is caused by two things: the large percentage of unreinforced masonry buildings and a more consistent underlying rock that transmits shock waves farther. The western states' geologic structure tends to break up earthquake vibrations,

Figure 2-1—Seismicity of the U.S. in the 20th century



whereas that of the central and eastern states transmits vibrations relatively undiminished.

Eastern and central earthquake shocks travel two to four times the distance of those in California, covering areas four to forty times greater. The East also includes denser populations, most of whom are not trained to respond to an earthquake. The heavy industrial development means that central and eastern states face a greater probability of damage resulting from toxic wastes, chemicals, and collapses.

Managing the Risk

The risk to life and property from earthquakes is especially significant in areas of rapidly growing urban areas near earthquake faults. In such areas, each year that passes without earthquake planning increases the potential for catastrophe. Earthquakes can, however, be among the most manageable of disasters. Eliminating vulnerabilities will reduce risks, and developing the plans and resources will help manage those that remain.

A properly composed and structured board can provide the long-term commitment, responsibility, and oversight necessary to develop and pursue meaningful seismic safety goals and effective risk-reduction programs. It can accomplish this by reviewing, evaluating, and helping the work of governmental agencies and the private sector. It can monitor seismic safety programs to ensure their adequacy and effectiveness. It can focus attention on seismic safety and provide a consistent policy framework for integrating and implementing needed programs.

Seismic safety must be incorporated into design and construction practices, emergency response, and recovery planning for the long-term. Without a long-term commitment, effective oversight and remedial efforts may be short-lived, piecemeal, and ineffective.

Why Limit It to Earthquakes?

Earthquakes differ from other natural disasters in a number of ways that make the threat unique and deserving of a single-focus advisory board. Unlike floods and most windstorms that create relatively localized damage, a large earthquake can create an enormous, multi-state area of damage that may leave its victims dependent on their own resources for days before relief can reach them. Moreover, with the exception of Alaska, California, and Hawaii, earthquake response planning is not a part of the public consciousness in most of the United States, as is preparation for floods, tornadoes, and hurricanes in the central and eastern United States.

Many earthquake risk reduction efforts are also unique. Seismic safety must not only be integrated into construction practices, but emergency response, recovery, and long-term risk reduction efforts as well. Earthquake risk management includes improvements in buildings, dams, transportation, and communications facilities. A seismic safety advisory board, by focusing its efforts on earthquake-related issues, will have plenty to do.

EARTHQUAKES CAN CREATE ENORMOUS, MULTI-STATE DAMAGE, A UNIQUE THREAT THAT DESERVES A SINGLE-FOCUS ADVISORY BOARD.

The question of overspecialization is certain to arise, particularly in areas where floods, hurricanes, or tornadoes are common. Earthquake response planning has much in common with fire safety, toxic materials handling, and other emergency response preparations, and the general level of response planning for these and other natural disasters. Broadening the focus of the advisory board to include these

and other natural disasters may allow it to address many of the interrelated issues relevant to preparation for, response to, and recovery from other types of natural disasters as well as earthquakes. Broadening the focus of the advisory board to make it multi-hazard is an option that can be exercised, particularly if it is the only approach available to concentrate attention on earthquake-related issues, but to do so may dilute its effectiveness in dealing with earthquake-specific mitigation matters.

The Bottom Line

A principal obstacle to effective earthquake risk management is lack of commitment by both the public and private sectors to make seismic safety a priority in allocating financial and other resources. Yet reasonable, long-term, incremental investment of resources to avoid future earthquake damage and economic and social disruption is enormously more effective than paying for building repairs and victim assistance after an earthquake. Some seismic risk reduction measures may be costly and complex; others may be inexpensive and relatively simple. An advisory body with a broad perspective can help weigh the cost-benefit of such measures, set priorities, and provide oversight for prudent long-term progress.

THE BOARD IS THE OUNCE OF PREVENTION THAT WILL PROVE ITS WORTH IN REDUCED RESPONSE AND RECOVERY COSTS.

Moreover, earthquake risk-reduction measures often result in other benefits, such as long-term improvements in buildings, dams, transportation facilities, communications, fire safety, toxic materials handling, and emergency response capabilities. The board can be the catalyst that promotes an efficient, cost-effective ounce of preventive investment in seismic safety that will prove its worth in a general state of preparedness for other natural hazards as well as earthquake risk reduction.

STATES WITH SEISMIC SAFETY ADVISORY BOARDS WILL BE MORE SUCCESSFUL IN REDUCING EARTHQUAKE RISK.

A seismic safety advisory board can enable both government and the private sector to respond to multiple needs with expertise that would not otherwise be available and make timely decisions on what should be done and when. Moreover, as a credible advocate of seismic safety that can help integrate the competing interests of multiple agencies and organizations, the board can promote needed seismic safety programs by building a supportive, nonpartisan constituency.

Future earthquakes will occur, and scientists and engineers know a great deal about how to minimize earthquake losses. A board can apply this knowledge to ensure that in the next century all states and communities will be seismically safer places to live. Unless earthquake risks are reduced and emergency response is strengthened, many of this nation's cities and millions of its citizens will remain at great—and unnecessary—risk.